4 International Collaboration

4-1. Overview

The Photon Factory has been collaborating internationally. The Indian beamline BL-18B started operation in 2009, and part of the beamtime is open for domestic users as well. The Photon Factory is also collaborating with the international synchrotron radiation community through meetings, workshops, and schools. The SESAME-JSPS school (Trunc, Turkey) and Cheiron school (Nishi-harima, Japan) were partly supported by PF.

4-2. Indian Beamline

The Department of Science and Technology (DST), Government of India and KEK agreed to set up an Indian beamline at the Photon Factory in 2008 with the Saha Institute of Nuclear Physics (SINP) as a nodal institute of India. Beamline 18B is leased to DST, and SINP set up two diffractometers and related detection systems. Twenty-seven experiments were carried out at BL-18B, and six papers based on BL-18B experiments were published in FY2013. The beamline is fully operational, and is open not only for Indian scientists but also general users.

4-3. Cooperation with the SESAME Project

SESAME (Synchrotron-light for Experimental Science and Applications in the Middle East) is a synchrotron light source under construction in Jordan. The SESAME facility is expected to enter full operation in late 2015, which will be the first major international research center in the Middle East. It is a unique and cooperative venture by scientists and governments of the region set up on the model of CERN (European Organization for Nuclear Research). It is being developed under the auspices of UNESCO (United Nations Educational, Scientific and Cultural Organization) following formal approval at the Organization's Executive Board Meeting (164th session, May 2002). The current members of SESAME are Bahrain, Cyprus, Egypt, Iran, Israel, Jordan, Pakistan, the Palestinian Authority, and Turkey. Japan has been supporting the SESAME project from the outset in 2000, and formally joined as an Observer in 2009. (Current Observers as of 2013 are France, Germany, Greece, Italy, Japan, Kuwait, Portugal, Russian Federation, Sweden, Switzerland, the United Kingdom, and the United States of America.) According to the cooperation framework between SESAME and Japan, researchers in Japan have held a series of schools concerning synchrotron radiation instrumentation and science in Cairo (2008), Antalya (2010), Amman (2011), and Trunc (2013) under the Asia and Africa Science Platform Program supported by the Japan Society of Promotion of Science (JSPS).

The 4th SESAME-JSPS School was held from June 13 to 22, 2013 at the Institute for Theoretical and Applied Physics (ITAP), Trunc, Turkey, which was a joint school with the 2nd Henry Moseley X-ray School. The school consisted of six days of lectures and two days of hands-on practice sessions, in which Japanese lecturers took charge of three lectures and all practice sessions. The 35 students from SESAME countries joined the school and eagerly learned about state-of-the-art techniques and science using synchrotron radiation. The hands-on practice session mainly focused on data analysis of five types of typical synchrotron measurement: X-ray photoelectron spectroscopy (XPS), X-ray absorption fine structure (XAFS), macromolecular crystallography, powder diffraction, and X-ray fluorescence analysis, using portable PCs. The students were separated into five groups, learned the principles of each technique, studied how to process the data, and finally gave presentations on what they had learned during the practice sessions. The SESAME-JSPS school has been highly evaluated by the participants due to the comprehensive hands-on practice, and has provided valuable opportunities to enlarge the synchrotron user community in the Middle East.

Figure 1: Group photograph at the 4th SESAME-JSPS school.

Figure 2: Presentation session to summarize the practice sessions.